Storm spotter

National Weather Service
Wichita, KS
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Figure 1. This manufactured home west of Cheney Lake was destroyed by the supercell thunderstorm on July 3rd.

Summer Climate Summary

by Andy Kleinsasser, General Forecaster

The summer of 2005 across central and southeast Kansas was on average a bit warmer than normal for most locations, and quite a bit wetter than normal, especially across portions of south-central and southeast Kansas.

What caused the above normal rainfall? We cannot blame it on El Nino/La Nina (warming/cooling of the sea surface across the equatorial eastern pacific), since their small contribution to Kansas weather occurs during the winter months. For the most part, wetter periods this summer were a result of an abnormally southern jet stream track. Usually, the jet stream tracks closer to the Canadian border during the summer months. However, this year the jet tracked mainly through the Central plains, which caused the storm track to be closer or even right over Kansas.

This abnormally southern storm track was especially prevalent during the month of August, dumping unusually high amounts of rain across mainly south-central and southeast Kansas. In

fact, Wichita recorded its wettest August on record of 11.96 inches. This shattered the previous record of 8.86 inches set in 1985. After an abnormally wet June, July and August, the summer rainfall totaled 23.61 inches. This broke the previous record of 23.32 inches set in 1950 for the wettest summer on record.

Chanute also experienced a wet summer with 20.23 inches. 11.44 inches of that fell in August. Unfortunately, precipitation records are not known for Chanute. However, one could speculate that it was likely one of the wettest summers and Augusts on record.

Salina was spared the brutally heavy rainfall amounts, tallying a modest 11.04 inches for the summer. The climatological normal for this city during the summer is 11.96 inches. June and August were somewhat wet months for the city, with much drier weather experienced in July.

Abnormally warm conditions were experienced in June for most areas. This was due to a strong upper level ridge which was present during the latter third of the month. This usually is a good indicator of hot and dry conditions. Consequently, a vast majority of June rainfall occurred during the relatively cool and stormy first half of the month.

June-August temperature records:

***Wichita…..**Coolest high temperatures were 68, 73 on August 14, 15. Lowest temperatures were 58, 56 on July 27, 28.

***Chanute**…Lowest temperatures of 54, 54 were on July 28, 29.

***Salina**……Coolest high temperature of 75, 79 occurred July 26, 27. Lowest temperature was 55 on July 27.

Wichita	**2005**	**2004**
Average Temperature Jun-Aug (F)	78.8 (0.0)	75.4 (-3.3)
June	77.6 (+2.0)	73.6 (-1.9)
July	80.0 (-1.0)	77.3 (-3.7)
August	78.7 (-1.1)	75.4 (-4.4)
100+ Days	4	3
Warmest High	101 on 7/23, 8/2	101 on 7/20
Warmest Low	77 on 7/25	76 on 7/16, 8/3
Coolest High	73 on 8/15	70 on 7/24
Coolest Low	56 on 6/5, 7/28	50 on 6/1
Precipitation Jun-Aug (in)	23.61 (+13.11)	17.09 (+6.59)
June	7.30 (+3.05)	8.04 (+3.79)
July	4.35 (+1.04)	6.88 (+3.57)
August	11.96 (+9.02)	2.17 (-0.77)
1.00 in+ Days	13	5
Most Precipitation in 24 Hours	2.67 on 7/3	2.57 on 7/23

Salina	2005	2004
Average Temperature Jun-Aug (F)	80.1 (+1.3)	76.3 (-2.4)
June	78.4 (+2.8)	73.9 (-1.7)
July	82.1 (+0.8)	78.7 (-2.6)
August	79.7 (+0.3)	76.4 (-3.0)
100+ Days	15	11
Warmest High	104 on 7/21, 22, 23	105 on 7/20
Warmest Low	84 on 7/23	82 on 7/21
Coolest High	71 on 6/3	67 on 7/24
Coolest Low	55 on 7/27, 28	50 on 6/1
Precipitation Jun-Aug (in)	11.90 (-0.04)	9.28 (-2.68)
June	5.37 (+1.22)	2.46 (-1.69)
July	1.72 (-2.60)	5.78 (+1.46)
August	4.81 (+1.32)	1.04 (-2.45)
1.00 in+ Days	4	2
Most Precipitation in 24 Hours	2.02 on 6/3	2.15 on 7/24

Chanute	2005	2004
Average Temperature Jun-Aug (F)	78.0 (+0.8)	73.8 (-3.5)
June	75.8 (+1.5)	72.1 (-2.2)
July	78.8 (-0.7)	75.5 (-4.0)
August	79.5 (+1.5)	73.8 (-4.2)
100+ Days	1	0
Warmest High	100 on 7/22	96 on 7/13, 20, 8/26
Warmest Low	76 on 7/25, 8/18	75 on 7/14, 8/26
Coolest High	69 on 8/14	68 on 7/29
Coolest Low	54 on 7/28, 29	47 on 8/12
Precipitation Jun-Aug (in)	20.23 (+6.98)	15.65 (+2.40)
June	6.59 (+1.54)	7.86 (+2.81)
July	2.20 (-2.04)	5.22 (+0.98)
August	11.44 (+7.48)	2.57 (-1.39)
1.00 in+ Days	5	4
Most Precipitation in 24 Hours	4.70 on 8/25	1.56 on 7/2

2005 Severe Storm Season

by Eric Schminke, General Forecaster

For the 2nd consecutive year, the atmosphere put on a 4th of July weekend fireworks display that overshadowed any of the man-made variant. During the afternoon and evening of the July 3rd, severe thunderstorms broke out across Central and South-Central Kansas, unleashing 75-100 mph winds and hail as large as softballs.

The convective barrage started when a severe thunderstorm dropped nickel-sized hail on south Hutchinson at 2:10 pm. The event quickly escalated when super-cellular severe thunderstorms erupted over Barton, Rice, Reno, and McPherson counties between 3:30 and 5:30 pm. During this time, 2-4 inch diameter hail bombed parts of southwest McPherson County at 4:00 pm. Most of this hail, pummeled rural areas 4 miles northwest of Inman, and 6 miles south-southwest of McPherson. No damage was ever reported.

Between 6:00 and 7:00 pm, one of the super-cellular severe storms in Reno County unleashed its power and caused disastrous and tragic results. The storm produced 80-100 mph winds on its southern end which raked south and southeast Reno County. This storm then took aim at Cheney Lake and State Park. The damage at the state park was *major*, and included the marina, around 125 boats, 35 campers, and an unspecified number of mobile homes. One mobile home was leveled. Total damage estimated around 12.5 million dollars. Six people were injured, all of whom required transport to Wichita hospitals. One man was killed when his fishing boat was overturned.

Between 9:00 pm and midnight, another complex of severe thunderstorms wreaked havoc across Harper County with 80 mph winds. Bluff City had some buildings completely unroofed. One such casualty was the KanOkla telephone building. In Attica, four homes were unroofed.

Later that night, around 2:00 am, severe thunderstorms stampeded across Montgomery County. The severe thunderstorms produced winds estimated around 90 mph. In Coffeyville, one home was destroyed when a large tree, possessing a trunk 2.5 feet in diameter, was uprooted and fell onto the home.

On June 30th, severe thunderstorms also proved how deserving they are of one's respect, when Southeast Kansas was hit by incredibly destructive winds and hail that reached the size of baseballs. The baseball-sized hail hit parts of Woodson County around 7:35 pm, causing an estimated $415,000 damage to crops. As the evening progressed, the severe thunderstorms, evolved into squall lines that unleashed 80-100 mph winds. Hardest hit was Neosho County. In Chanute, large trees were uprooted with many falling onto homes and businesses. Other homes and businesses were completely unroofed. Numerous barns and sheds were destroyed. The towns of Erie and St. Paul experienced nearly identical fates. In Erie, one home was destroyed. In St. Paul, a church steeple was completely removed. Obviously, many power lines and power poles were blown down, severing power to all three towns. This round of atmospheric mayhem was responsible for $2.873 million damage to crops and property.

Severe thunderstorms are not to be taken likely. As has been stated many times at severe storm spotter talks, severe thunderstorm winds can cause considerably greater damage than many tornadoes. The events of June 30th and July 3rd proved this point in dramatic fashion.

Another product of severe convection that drew considerable attention in 2005 was the flash flood. The first major event occurred June 8th and 9th., from around 8:00 pm the evening of the 8th thru the early afternoon of the 9th. Hardest hit were Butler, Harvey and Sedgwick counties.

In Butler County, two families required rescues from their homes 4 miles north of Whitewater. Numerous streets were barricaded in and around El Dorado, and creeks overflowed. The most notable occurred 2 miles northeast of Elbing, where Henry Creek overflowed, closing 150th Street as well as the 150th Street Bridge. In Harvey County, widespread 12-15 inch rainfalls in approximately 10 hours resulted in evacuations in Newton, where most streets were barricaded. Perhaps the worst flooding in this event occurred in Sedgwick, where an estimated 147,515 acres of farmland were inundated totaling an estimated $1.5 million damage.

In Sedgwick County, 19 homes were flooded, of which 12 were mobile. These homes were completely surrounded by flooding; which isolated their occupants from the outside world. In Mt. Hope, people required rescue from their homes. Many streets and highways were barricaded, especially across Northern Sedgwick County, where flash floods reached 6 foot depths. The flooding inundated around 75,000 acres of farmland. Total property damage was estimated at $150,000.

Nearly rivaling the June 8th-9th flash flood event was one that occurred on August 25th, when slow-moving thunderstorms drenched much of South-Central and Southeast Kansas with 6-10 inch rains in a 12-hour period. The higher amounts occurred in Butler, Wilson, and Woodson counties.

In Butler County, the most serious flash flooding occurred in El Dorado, where much of the town required evacuation with many others requiring rescues from stranded vehicles. In Wilson County, all roads and highways leading into Coyville (located in Northwest Wilson County) were flooded, preventing all access into or out of town. In Woodson County, 10 miles south of Yates Center, the flash flooding caused 9 horses to disappear. Two families required rescues from nearby homes.

Relatively speaking, it was a quiet year from a tornado standpoint. As of August 29th, 32 tornadoes occurred in the Wichita County Warning Area. Of this total, the strongest was an F3 which occurred on April 21st. This tornado possessed a lifespan of 11 minutes from 5:54-6:05 pm, rotational velocities of 160-220 mph, a path 5 miles long and around 200 yards wide. The tornado touched down in Neosho County, 3 miles south of Galesburg. The tornado destroyed two mobile homes, two barns, two out-buildings, one garage, one shed, unroofed one home (collapsing two walls in the process), and dislodged one home from it's foundation. The tornado caused an estimated $200,000 damage. Of the remaining 31 tornadoes, six were F1; possessing rotational velocities of 75-114 mph, while the rest were F0's with life spans less than 2 minutes.

The National Weather Service wants to thank each and every one of you for your continued dedication to not only the science of severe weather, but also to the protection of life and property. Your timely and detailed reports have once again proven invaluable to the severe weather program at WFO Wichita. The broadcast media and the general public are likewise indebted to you for your services.

Changes to our Website

by Jim Caruso, Lead Meteorologist

1) New KICT Experimental Radar Display

At the very top of the main page of the National Weather Service Wichita website, we have a link to a new KICT experimental radar display. This new, experimental radar display has several advantages over the present KICT radar imagery that has been available on our website for the past few years. The first advantage of the new, experimental radar imagery is the addition of graphical polygons which demarcate where valid warnings (Tornado, Severe Thunderstorm, Flash Flood) are in effect (see Image A below as an example from NWS Goodland radar).

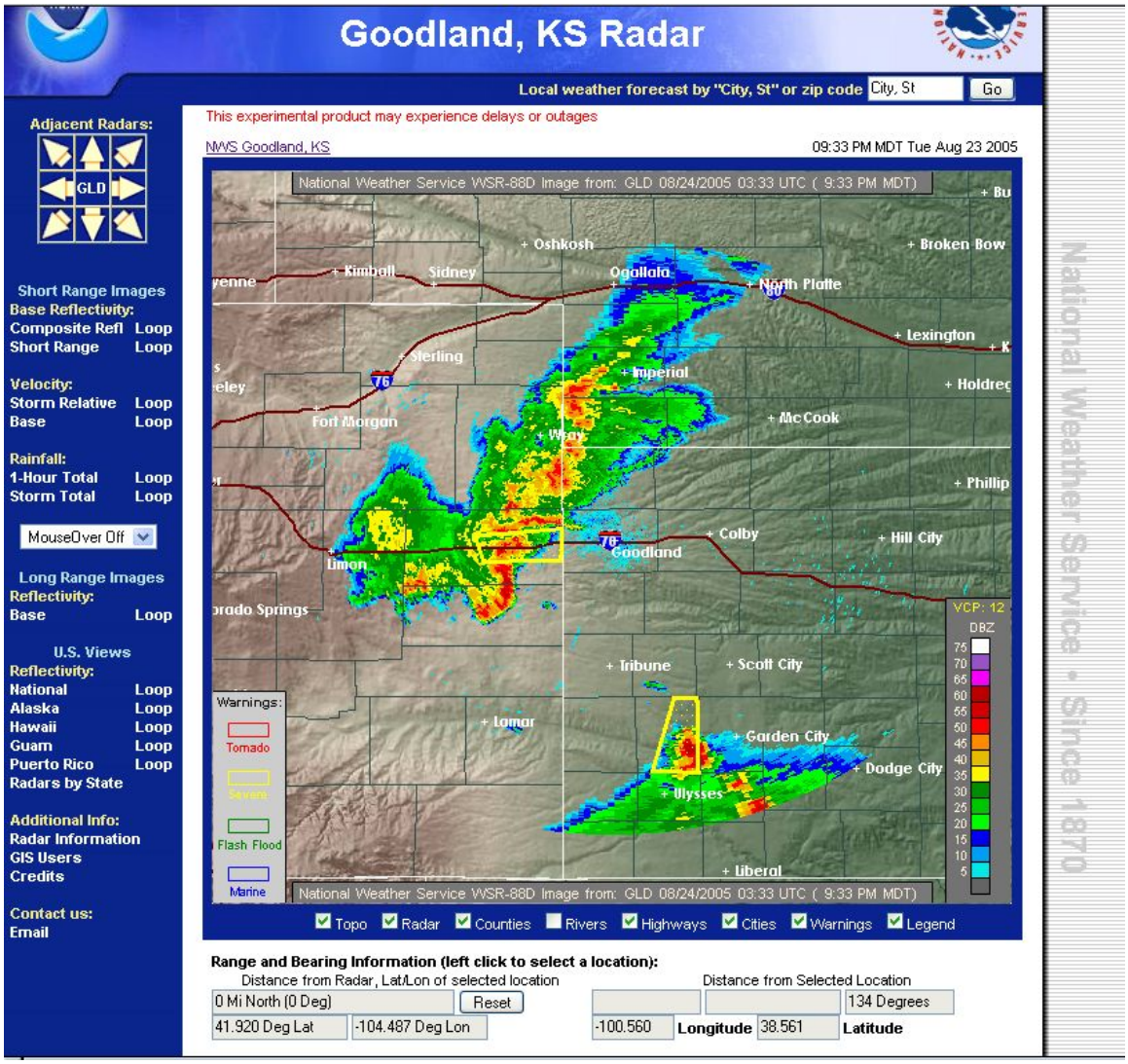

Image A: NWS Goodland, Kansas experimental radar image revealing two yellow polygons which indicated where two different severe thunderstorm warnings were in effect at 9:33 PM MDT on August 24th, 2005.

On average, it will take about 5 to 6 minutes from the time a warning is issued by the National Weather Service, to the time the warning polygons show up on the experimental radar page.

A second advantage of the new, experimental radar imagery is a clickable legend at the bottom of the image, where the user can toggle on or off the local topography, radar site location, counties, rivers, highways, cities, and the graphical warnings. Using Geographic Information Systems (GIS) mapping, there is a developed JAVA interface which controls the radar loops and toggles. There is also now range and bearing information which will show the distance in miles of the mouse cursor location to the radar, along with latitude and longitude information. The user can also click a spot on the radar map (such as where they live) and figure out how far away thunderstorms or other precipitation is from that location.

The user is able to loop images for several different products, for example, short range reflectivity, composite reflectivity, storm relative motion, one hour and storm total precipitation. With regard to these image loops, the user can now zoom in or out, as well as, pan across the image. One can now click a toggle button to automatically update the image loop instead of having to click a refresh button on an internet browser.

Another addition is a Mouse over On/Off toggle located on the left hand navigation menu of the experimental radar page. When the Mouse Over is toggled "On", the user simply needs to move the mouse cursor over the radar image link of their choice, for example, composite reflectivity, and the associated image will show up immediately on the radar image map to the right.

Possible future enhancements to the new, experimental radar imagery include the ability to plot storm reports (tornado, wind, hail, and flood). Your feedback would be greatly appreciated and will help the National Weather Service determine what future modifications are needed or desired. On the left hand side of the experimental radar imagery, there is a menu. Under "Additional Info", there is a link called "Credits". If one clicks on "Credits", it will take them to a page where they can access a feedback form.

2) NWS Wichita Local Climate Outlooks for Central, South Central, and Southeast Kansas

Earlier this summer, the National Weather Service in Wichita began issuing a Local Climate Outlook product for Central, South Central, and Southeast Kansas. As soon as the latest outlook is issued, we make this available as a link on our main webpage, and also have it linked under our "Local Climate" Section of our website. Our Local Climate Outlook, written by Eric Schminke with assistance from Ken Cook, is downscaled from official climate outlook products issued by NOAA's Climate Prediction and Climate Diagnostics Centers, using local expertise and knowledge of large scale climate impacts on the local area that we serve. If you wish to provide feedback, feel free to email our webmaster. Our Outlook for fall 2005 has already been posted.

Vanity Call Sign at NWS Wichita

by Robb Lawson, General Forecaster

Through the efforts of our SKYWARN volunteers, the NWS Wichita now has its own vanity call sign. If you hear the call sign WXØICT on your amateur radio, you are hearing an amateur radio operator located at the National Weather Service Office in Wichita.

A vanity call sign is a call sign for a specific station, rather than an individual. Vanity call signs have to be reviewed and approved by the FCC before they can be used. Whenever our SKYWARN volunteers hear WXØICT they now know they are talking directly to an amateur radio operator at the NWS Wichita.

If you are interested in being involved in the Amateur radio aspect of SKYWARN, feel free to take part in our weekly SKYWARN amateur radio nets. The first net takes place at 7:00 pm on Tuesdays on the 146.820 repeater located near Hutchinson. Another net is then conducted at 7:30 pm on the 145.130 repeater located near Beaumont. This repeater now has a PL tone of 156.7. Both of these weekly nets are open to all licensed amateur radio operators. For more information on the SKYWARN program, please visit: http://weather.gov/wichita

One Inch Hail Field Evaluation

by Chance Hayes, Warning Coordination Meteorologist

The end of the 2005 severe weather season brought the one inch hail field evaluation to a conclusion. Every NWS office that served the state of Kansas temporarily raised the minimum hail size for a severe thunderstorm warning from ¾ to 1 inch in diameter. The main goal of the evaluation was to place more of an emphasis on severe weather safety in a severe thunderstorm warning. In regards to safety in a severe thunderstorm warning, we have found that complacency or ignoring the warnings was becoming all too common. So, by reducing the number of warnings, we were trying to imply that if you ignored the warning, you or your property had an opportunity to become injured or damaged. During the evaluation, each office saw a decrease in the number of warnings issued between 10 to 35 percent.

We are currently assessing the impacts of the evaluation for final recommendations. As of this writing, we are planning to recommend continuing this evaluation into the severe weather season of 2006, and possibly test this in more NWS offices across the plains. If you have any thoughts on this subject please feel free to send them to;

National Weather Service
2142 S. Tyler Rd.
Wichita, KS 67209

Chance.Hayes@noaa.gov

Send us your Weather Pictures

By Chance Hayes, Warning Coordination Meteorologist

Wichita.Stormpics@noaa.gov

We at the National Weather Service would like for you to send us any interesting weather pictures you take. The pictures can range from tornadoes to ice storms. We are interested in the beauty and any unfortunate devastation that occurs in your area. Many times with major events like the one in Great Bend or Neosho County, the NWS conducts our own damage surveys, but we would still like to see what you have captured. Keep in mind, that any pictures you send to the NWS may be used in weather stories on the internet, or in presentations to the public. Proper credit will be given to the photographer. Please let us know when and where the image was taken, and any other pertinent information you feel would describe the situation. Lastly, if you happen to catch any interesting weather on video, we would like to see and possibly utilize that as well. Send any videos on a CD or VHS tape to;

National Weather Service
2142 S. Tyler Rd.
Wichita, KS 67042

Winter Weather Safety Tips

By Chris Bowman, Meteorologist Intern

The winter season is fast approaching and that means it is time to review some tips for staying safe during the cold and snowy Kansas winter. Before a storm strikes, be prepared.

At home and work have a flashlight with extra batteries as well as a battery operated NOAA Weather Radio and portable radio. Be sure to have extra food and water. High energy foods such as dried fruits, nuts, granola bars and foods that do not require cooking or refrigeration are best. Make sure to have extra medications and baby items as well as first aid supplies. If your house uses heating fuel, be sure to have several days' worth as fueling companies may not be able to refuel your home for several days. Have an emergency heat source ready to go. These can include a fireplace, wood stove or a space heater but be sure to ventilate any device properly. Also, make sure you have a fire extinguisher and smoke detector that are in working order. Don't forget about pets either. Make sure pets have plenty of food, water and shelter.

If you're traveling, fully check and winterize your vehicle and plan around the storm by listening to reports to avoid the storm. Keep the gas tank near full to avoid ice in the tank and fuel lines. Avoid traveling alone and let someone know your timetable and primary and alternate routes. A winter storm survival kit is a must and should include the following items:

* Mobile phone, charger and batteries
* Blankets and/or sleeping bags
* First aid kit
* Knife
* High-calorie, non-perishable food

* Extra clothing to stay dry
* A large can to use as an emergency toilet and toiletry supplies
* A small can and waterproof matches to melt snow for drinking water
* Bag of sand or cat litter for traction
* Shovel
* Windshield scraper and brush
* Tool kit
* Tow rope
* Battery booster cables
* Water container
* Compass and map

On the farm, if possible, move animals to sheltered areas. Shelter belts, properly laid out and orientated, are better protection for cattle than confining shelters such as sheds. Haul extra food to nearby feeding areas. Have extra water available since most animals die of dehydration in winter storms.

If you are caught outside during a winter storm, find shelter, stay dry and cover all exposed body parts. If no shelter is immediately available try to build a windbreak to get out of the wind and fire for heat and to attract attention. Adding rocks around the fire is a good way to absorb and reflect heat. Don't try to eat snow as this will lower your body temperature, instead melt the snow for drinking water.

If caught in a vehicle, stay in the vehicle. Run the motor for about 10 minutes each hour to generate heat but make sure the exhaust pipe is not blocked by snow or other debris. Open the window a little to allow fresh air in to avoid carbon monoxide poisoning. Make yourself more visible to rescuers by turning the dome light on, tying a bright colored cloth to the antenna or door and when the snow stops raise the hood of the car to indicate you need help.

In the home, when using alternate forms of heat such as a fireplace, wood stove or fireplace, use fire safeguards and properly ventilate. If no heat is available close off unneeded rooms and stuff towels or rags in cracks under doors and cover windows at night. Eat high energy foods and stay hydrated by drinking plenty of water. Wear layers of loose-fitting, lightweight, warm clothing. Remove layers that may cause overheating, perspiration and subsequent chill.

Comments and suggestions are always welcome.
Please phone, e-mail or mail us at:
National Weather Service
2142 S. Tyler Rd.
Wichita, KS 67209
316-942-8483
w-ict.webmaster@noaa.gov
You can also view this newsletter on-line at:/www.weather.gov/wichita

Editor and Layout: Rob Cox